# Air Oil Separator for 02-07 WRX/STI Top Mounted Intercooler Setups

2015-01-05

Thank you for purchasing this PERRIN product for your car! Installation of this product should only be performed by persons experienced with installation of aftermarket performance parts and proper operation of high performance vehicles. If vehicle needs to be raised off the ground for installation, the installer must use proper jacks, jack-stands and/or a professional vehicle hoist for safety of the installer and to protect property. If the vehicle is lifted improperly, serious injury or death may occur! Please read through all instructions before performing any portion of installation. If you have any questions, please contact our tech department prior to starting installation. We can be reached in any of the following methods:

Email Tech@PERRINperformance.com
Instant Chat off the main page of www.PERRINperformance.com
Or simply call our tech team at 503-693-1702

### GENERAL MODIFICATION NOTE

Modifications to any vehicle can change the handling and performance. As with any vehicle extreme care must be used to prevent loss of control or roll-over during sharp turns or abrupt maneuvers. Always wear seat belts, and drive safely, recognizing that reduced speeds and specialized driving techniques may be required. Failure to drive a vehicle safely may result in serious injury or death. Do not drive a vehicle unless you are familiar with its unique handling characteristics and are confident of your ability to maintain control under all driving conditions. Some modifications (and combinations of modifications) are not recommended and may not be permitted in your state or country. Consult the owner's manual, service manual, instructions accompanying these products, and local laws before purchasing and installing these modifications. You are responsible for the legality and safety of the vehicle you modify using these components.

## SPECIAL NOTES:

- Installation of this part should be performed by a qualified technician as this is a complicated and time consuming installation with many different steps and optional hook ups along the way.
- Read through entire installation before starting this project. There is a decent amount of planning needed for hose routing, and it is important to understand the full installation before beginning installation of the AOS. Mainly to orient bottom of AOS before sealing it with RTV.
- We have provided a couple of methods on how to hook this up to your engine. Keep in mind there are many variations of how this can be installed. Consult your tuner or qualified technician before installing this part on your car to better determine how it should be setup on your vehicle.
- The PERRIN Air Oil Separator (AOS) was designed to remove a significant amount of the oil and water vapor that normally gets sent to your intake system to be ingested by your engine. There are many variables as to how much oil will make it past our AOS, but expect it to remove a significant amount of the crank case blow by. For cars with built engines with excessive blow-by, you may still experience oil getting past our Air Oil Separator.
- If you ever need to clean out your Air Oil Separator, simply remove M6 bolt from bottom and twist off bottom. Use a degreaser like Simple Green and warm water to clean out. Follow instructions below for further details.
- Pictures below will show both plastic and nickel plated fittings used in different locations. Included with each AOS kit are a mixture of both for their specific uses. We also offer an upgrade kit that includes nickel plated fittings and upgraded hose which is shown in pictures below as well. See your dealer for more info.

## NPT Notes:

- There are many NPT (National Pipe Thread) fittings included with your Air Oil Separator. Throughout the instructions, these notes below will be referred to, and it's important to understand these types of fittings and how they work.
- NPT fittings are a tapered thread that seals when tightened, not bottomed out. Thread fittings in by hand and tighten roughly 1/2 to 1 full turn more until fitting is tight. **NOTE: Using a small amount of Teflon tape on threads is a good idea to ensure a proper seal. Teflon tape is rated to work up to 500F and is impervious to all chemicals that your AOS will see. This is highly recommended to use over any other sealant.**
- Angle of 90 degree fittings can be adjusted after tightening, as long as they are not backed off more than 1/8$^{th}$ of a turn.

## RTV Notes:

- Included with your Air Oil Separator is a tube of Black Silicone RTV. This is used as a back up to the quad seal type O-ring to seal the microscopic pores and scratches that can cause small oil leaks.
- The O-ring by itself is enough to create an air tight seal (will pressure test ok) but may not be enough to contain oil from seeping out of any small imperfections in the body of your Air Oil Separator. So we HIGHLY recommend the use of RTV in the areas we describe.
- Just like Subaru uses RTV to seal valve covers, oil pans engine blocks and precision machined surfaces, we also incorporate the use of this in the PERRIN Air Oil Separator.

## Included Parts with PERRIN Air Oil Separator for Top Mount Intercoolers:

- **(1) PERRIN Universal Air Oil Separator (AOS)**
- **(1) Quad Seal O-ring**
- **(1) Black Silicone RTV**
- **(1) 02-07 or 08-13 TMIC AOS Bracket**

- (1) Crank Case Vent Adapter
- (9’) 1/2” Crank Case Vent Hose
- (3’) 3/8” Fuel Injection Hose
- (5’) 5/16” Coolant Hose
- (4’) 5/16” Fuel Injection Hose
- (9) #3 Hose Clamps
- (4) #2 Hose Clamps
- (2) #27mm Hose Clamp
- (1) 1/2” Vacuum Cap
- (2) 3/8 NPT 1/2” Straight Plastic Fitting
- (2) 3/8 NPT 1/2" 90 Degree Plastic Fitting
- (1) 1/4 NPT 3/8” Barb Straight Brass Fitting
- (1) 3/8 NPT- 1/2” Barb Female Brass Fitting
- (2) 1/4 NPT 1/2” Barb Straight Plastic Fitting
- (2) 1/8 NPT 5/16” 90 Degree Barb Plastic Fitting
- (1) 1/8NPT 5/16” 90 Degree Barb Nickel Plated Fitting
- (2) 1/8 NPT 5/16” Straight Barb Nickel Plated Fitting
- (2) 1/2" Y Plastic Connector
- (1) 1/2” Tee Plastic Connector
- (2) 1/2”-1/2” Plastic Connector
- (1) 5/16”-5/16” Plastic Connector
- (3) 3/8 NPT Plug
- (2) 1/4 NPT Plug
- (1) M10x80mm Hex Bolt
- (1) M10 Nut
- (8) 3/8” Washers
- (3) M8x16mm Button Head Cap Screw
- (3) M8 SS Washers
- (2) M6x14mm Button Head Cap Screw
- (2) M6 SS Washer
- (1) M4 Hex Wrench
- (1) M5 Hex Wrench
- (1) M6 Hex Wrench
- (20) Zip Ties

## Installation Instructions

1. Using the above diagram as a guide, take note of all fittings and our recommended connections. There are many options and many ways to install this. Please read through all instructions before proceeding with install.
2. Locate and remove intercooler (including Y-pipe and throttle body coupler) from engine or any boost tubes connected to turbo and throttle body. This is necessary to gain access to center crank case vent, PCV system and other items.

# 3. Mounting

a. The placement of the AOS needs to meet two main criteria. First, the oil drain port needs to be higher than the engine port used for draining oil back into the engine. As long as this is mounted higher, AOS will drain properly. Secondly, AOS also needs to be mounted vertically like in above picture. It will not function properly if mounted on its side or at an angle.

b. The supplied bracket is designed to allow AOS to fit on a car with Top Mount Intercooler installed. This puts the AOS in the proper location for it to clear turbos, intercoolers and other commonly installed parts. Before proceeding to Step 4, test fit AOS in this location to ensure it clears boost tubes and any other components that might be installed.

c. Locate (2) M6 threaded holes in right side shock tower. These will be used to mount the AOS bracket. These are located in the same place on every chassis, but will be covered up by different things depending on the year. 02-05 WRX will need to remove and disable the cruise control actuator. 06 WRX and STI need to remove small plastic plugs or stickers covering holes. 2007 WRX and STI need to remove a bracket holding the engines wire harness plug to the chassis. **NOTE: None of these items will be reinstalled. In later step, you will need to secure wire harness and plug away from turbo.**

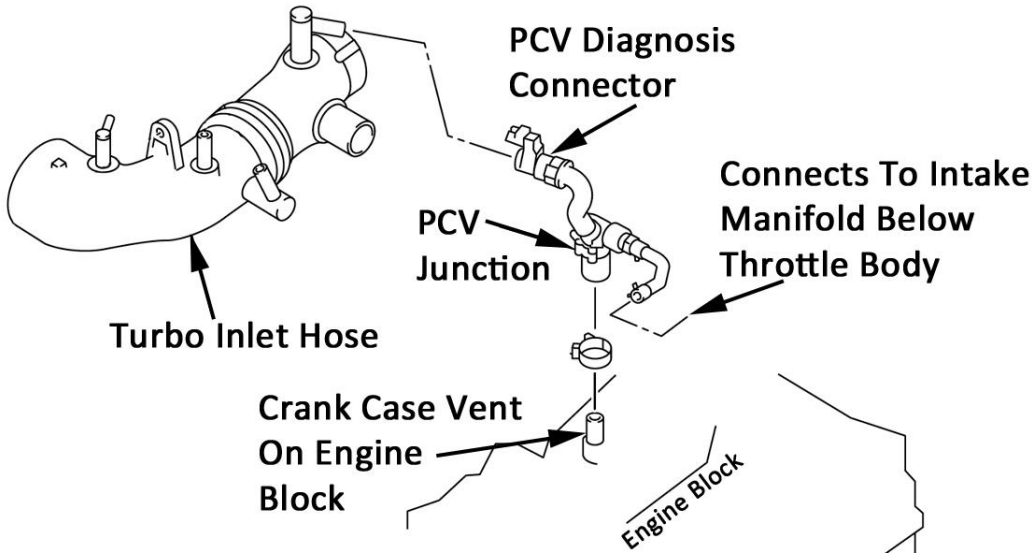
d. Install supplied mounting bracket to AOS body using supplied M8 button head screws and SS washers. Slide AOS to the upper side of the slot to start with and tighten down.

e. With AOS mounted to bracket, secure bracket to shock tower using supplied M6 bolts and SS washers. **NOTE: Below picture shows bracket mounted to chassis without AOS bolted to it. This is done to clearly show how bracket is mounted to shock tower.**

f. Make sure AOS clears all OEM hoses, lines and other things in engine bay.
g. Temporarily adjust AOS bottom and its rotation. Loosen bolt in bottom of AOS and adjust rotation of bottom so that threaded holes are accessible. Further adjustments may need to be made in future steps.
h. Over the next few steps it may be necessary to remove AOS from bracket to adjust orientation of bottom and fittings to better match your specific setup. It is not necessary to tighten bracket fully until final step.

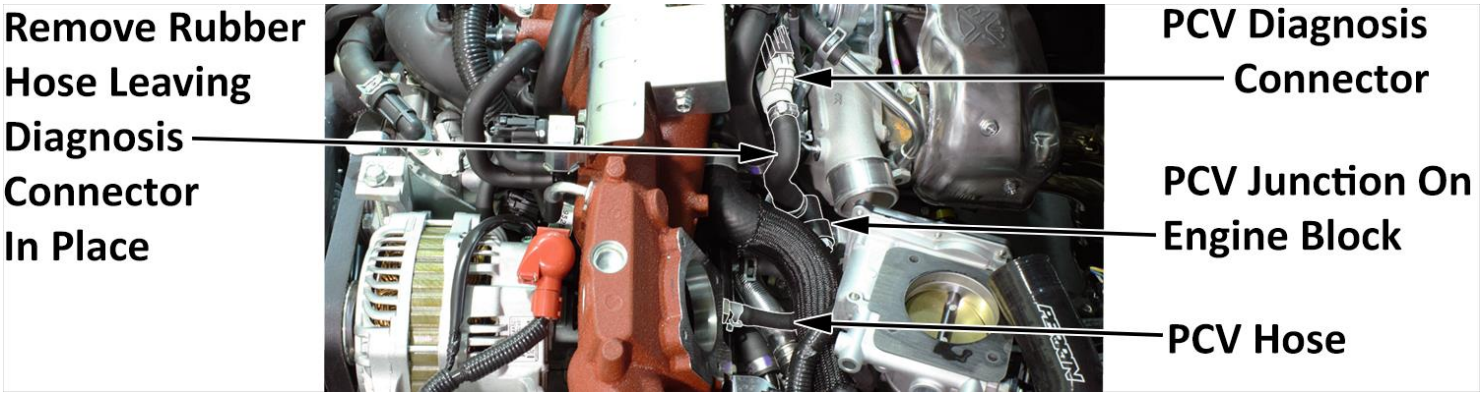
## 4. Oil Drain Connection

a. The AOS oil drain is not an optional hook-up as the AOS is not designed to contain oil within itself. This fitting is used to drain the oil that is captured within the AOS body back to the engine through a crank case vent.
b. Install supplied 5/16" 90 degree nickel plated fitting into oil drain outlet in bottom of AOS keeping in mind that this needs to point downward slightly. **See NPT Notes above regarding installation of this fitting**.
c. Install supplied 1/2" 90 degree black plastic fitting into crank case vent inlet on side of AOS body. **See NPT Notes above regarding installation of this fitting.**




**Picture above shows typical 2002-07 WRX, and 2004+ STI PCV Junction. (2002-2003 WRX does not have PCV diagnosis connector)**

d. Locate and remove throttle body from intake manifold for better access to crank case vent and PCV connection. Using diagram below, locate OEM PCV/crank case vent junction and remove from engine, turbo inlet hose, and intake manifold. Take note of intake manifold connection, as you need to connect a fitting or hose to this in a later step. **NOTE: When removing PCV Junction on 2004+ STI and 2005+ WRX models there is a PCV diagnosis connector with an electrical connection where hose meets the turbo inlet hose. Only remove hose from PCV diagnosis connector, leaving it and electrical connection connected to turbo inlet hose.**

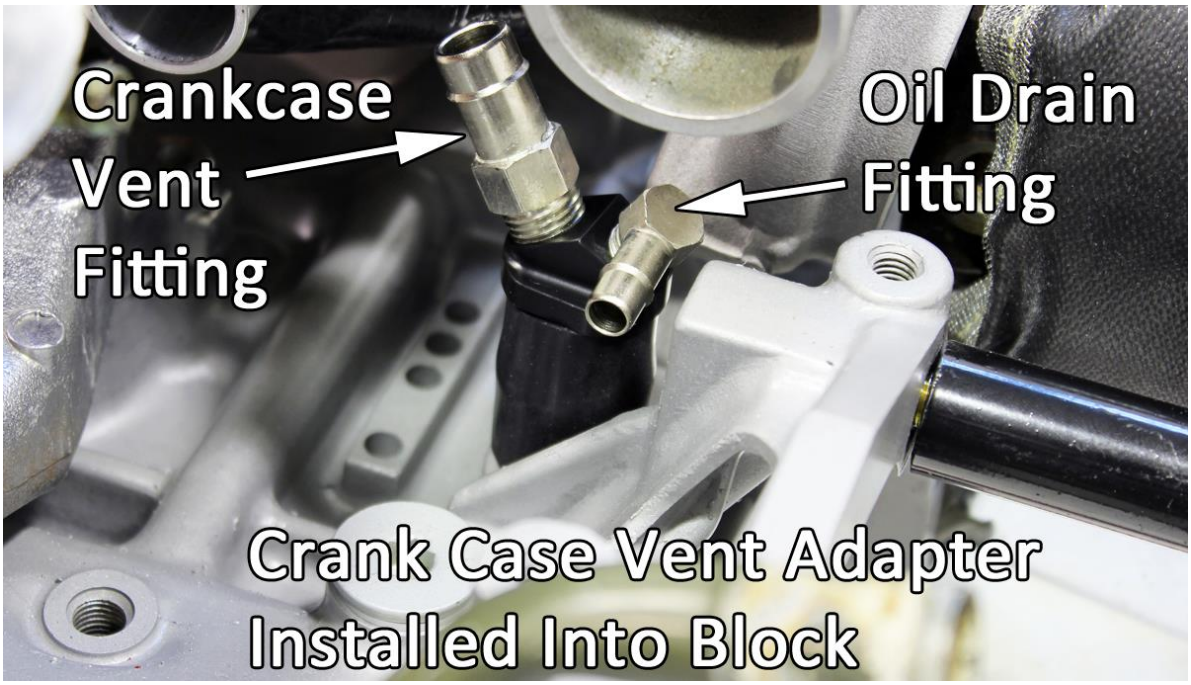

Remove Rubber Hose Leaving Diagnosis Connector In Place
PCV Diagnosis Connector
PCV Junction On Engine Block
PCV Hose

**Above picture shows 2008 STI with PCV junction exposed.**

e. Using supplied 1/2" vacuum cap, plug open connection on turbo inlet hose (or PCV diagnosis connection nipple on newer cars). **NOTE: It is important to ensure there are no vacuum leaks in turbo inlet hose after this step is complete. This will cause a lean condition and lead to engine damage.**

f. If short rubber hose (3/4"ID x 2" long) was pulled off from crank case in above step, remove from OEM PCV junction and reinstall to engine block as this is used to connect PERRIN crank case vent adapter to engine block. Remove upper pinch clamp from hose and loosely install supplied 27mm clamp.

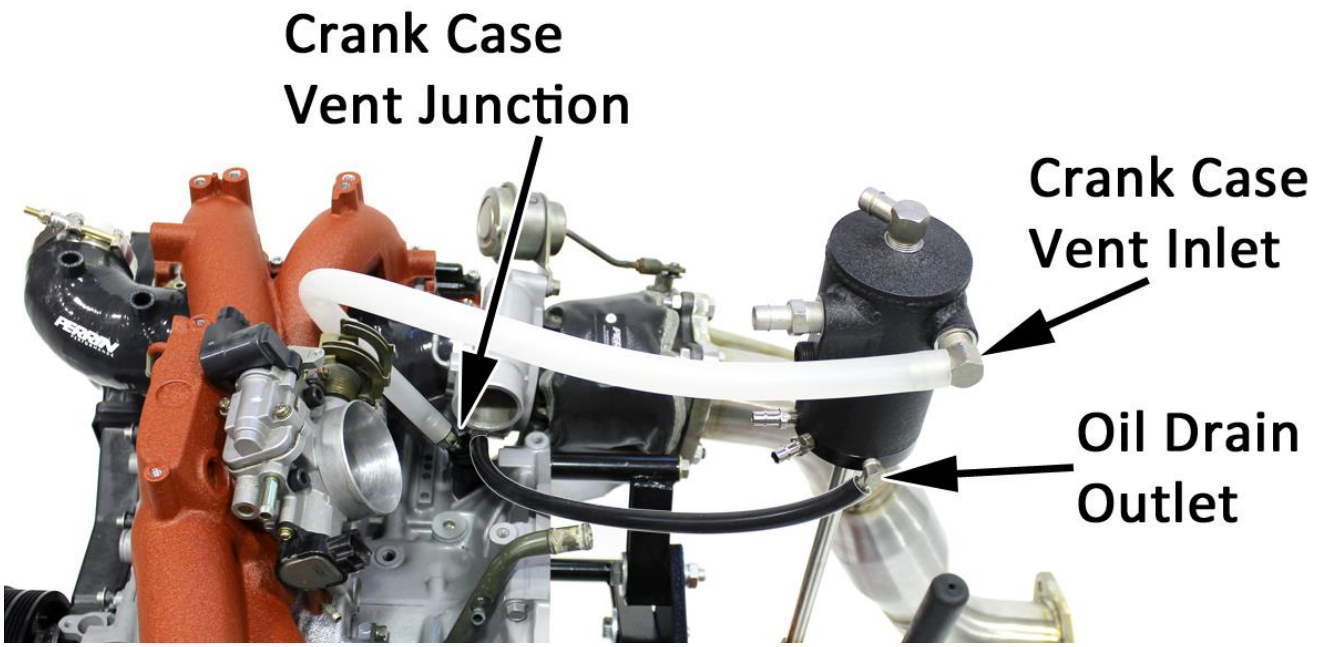
g. Using diagram below, install supplied 5/16" 90 degree black plastic fitting into PERRIN crank case vent adapter making sure to aim in the direction shown below or in a direction that allows oil to travel downhill from AOS bottom. **See NPT Notes above regarding installation of this fitting.**




**Shown with optional nickel plated fittings from upgrade kit PSP-ENG-608. Use black plastic connectors on these connections.**

h. Using diagram above, install supplied 1/2" straight black plastic fitting into PERRIN crank case vent adapter. **See NPT Notes above regarding installation of this fitting.**

i. Install PERRIN crank case adapter into hose (3/4"ID x 2" Long) on engine crank case vent and secure using supplied 27mm hose clamp.




**Actual routing of hoses may not be represented above. Diagram shows simplified path to help visualize routing.**

j. Using diagram above and supplied 5/16" fuel injection hose, connect oil drain outlet on bottom of AOS to 5/16" 90 degree fitting on PERRIN crank case vent junction. Secure both ends using supplied #2 Hose clamps. **NOTE: It is very important to route this hose such that it NEVER travels uphill from bottom of AOS to crank case vent fitting. Also during this step it is important to orient bottom so drain and the next step of installing coolant feed, has the cleanest path to engine. Again, DO NOT seal AOS bottom to body until final orientation has been settled on!!**

k. Using diagram above and supplied 1/2" Emissions Hose, connect 1/2" fitting on PERRIN crank case vent junction to 1/2" fitting on side of AOS. The direction of this fitting is not critical and can be adjusted to fit your particular installation. Use supplied #3 clamps to secure both ends. **NOTE: Routing of this vent hose is not that important, just makes sure it is not pinched off while traveling to AOS body.**

l. For cars that see an extreme amount of high G's or an excessive amount of blow by, we recommend a slightly different installation for the crank case vent hoses. See special notes below for this.

## 5. Coolant Feed Connections

a. The coolant connection is an optional hookup, but we **HIGHLY** recommend connecting these up as they help reduce water vapor and sludge that can build up in AOS. The easiest connection to get coolant from is the throttle body, as all Subaru models have the same coolant connections on the throttle body that can be used. Other connection points can be used as long as there is some coolant flow through the hoses. **NOTE: Installing coolant connection will cause some coolant loss and coolant spill. Make sure to top off coolant after installation is complete.**

**Picture above shows 04+STI throttle body. 02-05 WRX throttle body will appear slightly different.**

b. Install supplied 5/16" straight nickel plated fittings into bottom coolant ports on AOS. This fitting is NPT, which is a tapered, thread that seals when tightened, not bottomed out. Thread fittings in by hand and tighten roughly 1/2 to 1 full turn more until fitting is tight. **NOTE: Using a small amount of Teflon tape on threads is a good idea to ensure a proper seal.**

c. Locate coolant hose on throttle body (shown above) that will be used to supply coolant to AOS bottom.

d. Disconnect coolant hose from throttle body and install supplied 5/16"-5/16" plastic adapter into hose. Secure with OEM pinch clamp.

e. Install supplied 5/16" coolant hose to 5/16" plastic adapter and route hose to either coolant feed fitting on AOS bottom. Cut hose to length,

install onto fitting and secure both ends using supplied #2 hose clamp. **NOTE: During this step it is important to orient AOS bottom so coolant feed hoses, have the cleanest path to engine. DO NOT seal AOS bottom to body until final orientation has been settle on!!**

Leave Coolant Feed
Connected On This Side
Route Coolant Hose From Thottle Body To
AOS,Then Back To Coolant Hose on Engine

**Actual routing of hoses may not be represented above. Diagram shows simplified path to help visualize routing.**

f. Install remaining 5/16" coolant hose to 5/16" fitting on AOS bottom and secure with supplied #2 clamp. Route hose back to fitting left open on throttle body and secure with supplied #2 hose clamp. **NOTE: This is the final step that may affect the orientation of AOS bottom. It is now ok to follow procedures to seal bottom with RTV in next step.**

g. Using above diagram, you can see the coolant hose connections for all cars. This diagram has been simplified to show the hose routing. Hoses can be routed differently depending on where the AOS is mounted or if intercooler plumbing requires this. Keep in mind that the coolant fittings on the AOS become part of the coolant path from engine to throttle body.

## 6. Assembly and RTV

a. Each AOS is assembled with M5 bolt, nylon seal, and special quad seal O-ring placed around bottom for packaging purposes. In order to ensure your AOS has an oil tight seal, it is necessary to apply a small bead of silicone RTV around bottom as shown below**. NOTE: This step can NOT be done until orientation (rotation) of bottom has been determined. Further instructions will be given to reference these steps, further into installation. Make sure orientation is set before proceeding.**

b. Once desired orientation for bottom is set, remove M5 bolt from bottom, making sure to keep track of black nylon seal.

c. Mark orientation of bottom with can using tape or grease-type pen.

d. Remove bottom of AOS from body by twisting and pulling slightly. This can be a tight seal, and working on it from both directions may be necessary. Alternatively, pull AOS bottom out of body roughly 1/8" to expose area to place RTV, instead of removing completely. This method also reduces the chance of damaging the O-ring.

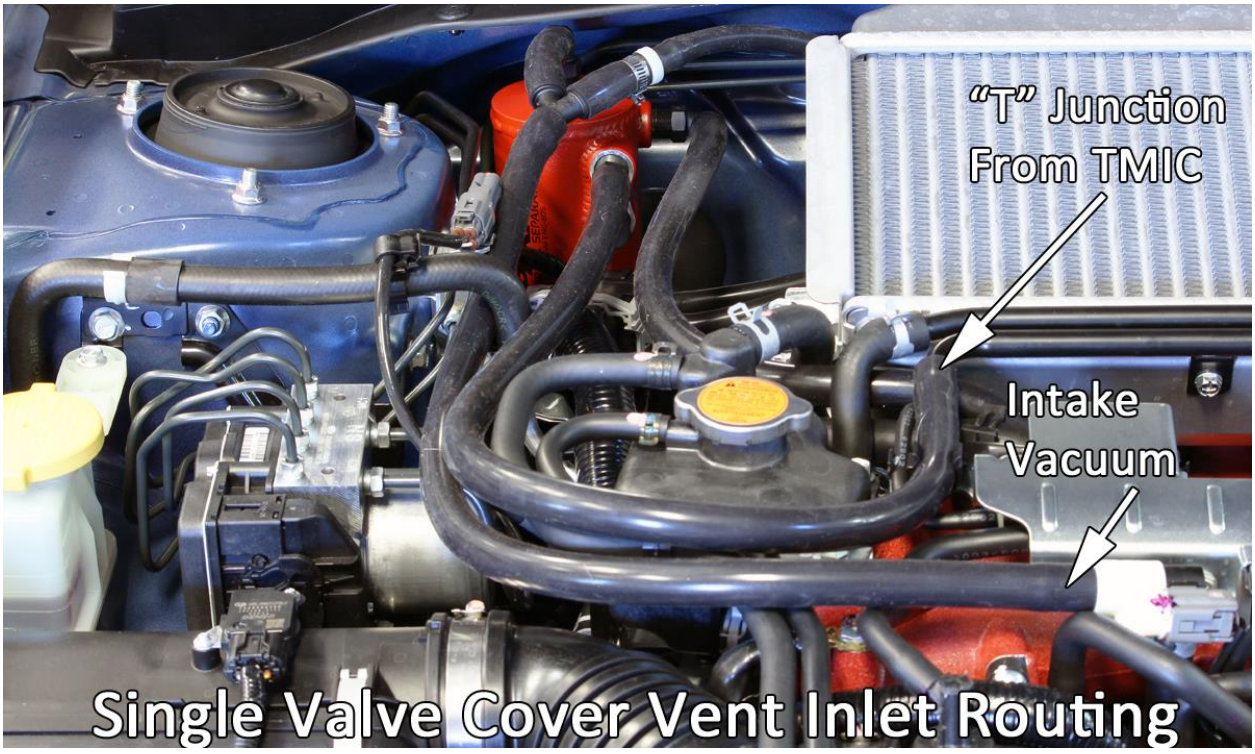
**e.** Using below picture for reference, and supplied black RTV compound, apply 1/16" to 1/8" (Do not exceed 1/8") bead completely around bottom of AOS. **Note: Try not to apply RTV on O-ring, only apply to bottom edge/corner as shown.**

**Apply less than 1/8" Bead of Silicone RTV Around Entire Bottom Edge**

f. Carefully install bottom into body, making sure quad-type O-ring isn't folded over or cut. As bottom is pushed into body, some RTV will spill out sides. It is important to see this occur around entire bottom of AOS as this is what creates the oil-tight seal.
g. Remove excess around bottom with knife, and let RTV cure for at least 1 hour. During this time, do NOT use on vehicle as any oil that passes through AOS can affect how RTV cures and may lead to a small leak.

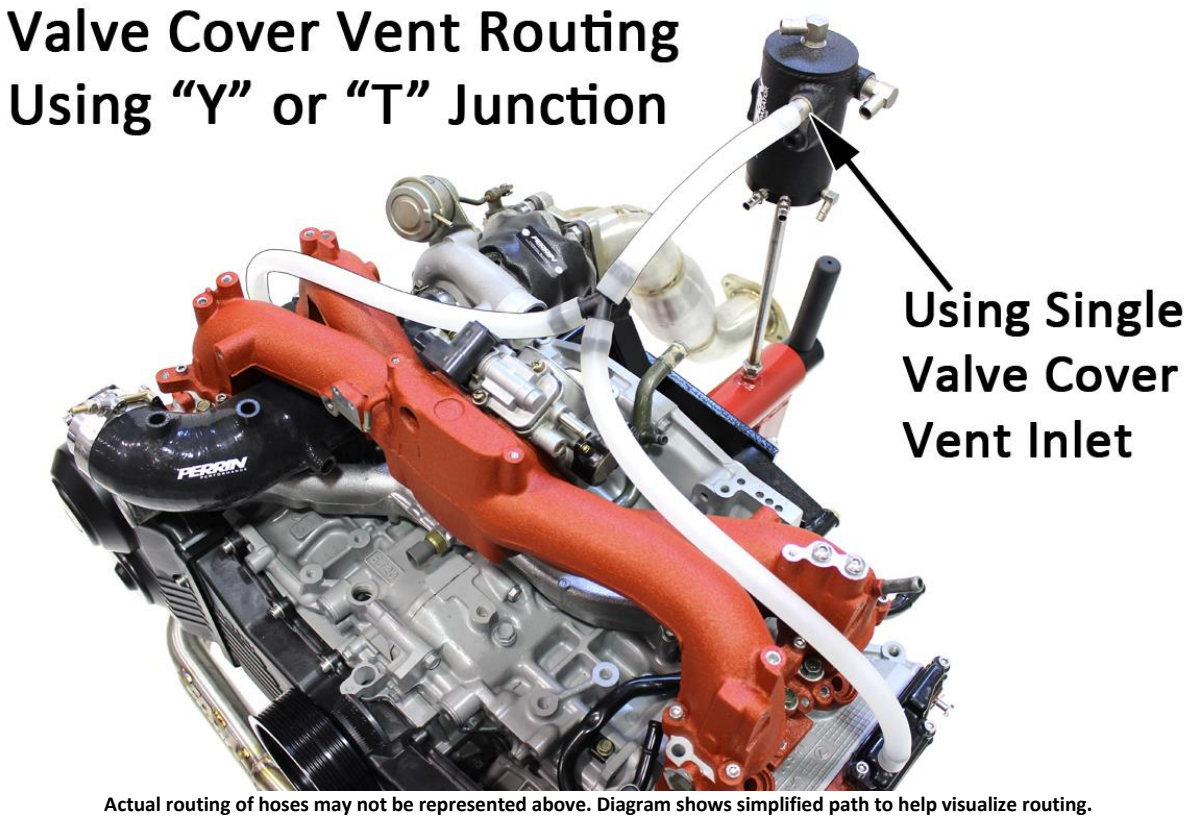
# 7. Valve Cover Vent Inlet Connections

a. Your Subaru engine has a valve cover vent on both left and right heads that need to be routed to the AOS. The method for doing this can vary depending on the desired setup. **Special Note: Most all models will appear to have two vents on each valve cover, only one set of these are considered vents. Locate vents that connect left valve cover to center crank case vent, then to right valve cover. These sets of hoses/vents are considered the balance hoses and are to be left alone. DO NOT remove or tee into these hoses!**
b. Once proper set of valve cover vents are located, decide if you want to:
    i. Use OEM piping on top mounted intercooler as the "T" connection, and use only one of the two AOS valve cover inlet ports. This is the simplest and cleanest method (Shown below in picture of AOS in engine bay). Continue to Step "c" below.
    ii. Join both valve cover vents using supplied "T" or "Y" connector, replacing all OEM hoses with supplied 1/2" emissions hose and using only one valve cover vent inlet port on AOS. This method is preferred if OEM hoses are old and hard, or aftermarket parts may be installed affecting installation. (Shown below in picture of AOS on engine stand). Continue to Step "e" below.
    iii. Connect each valve cover vent separately to each of the AOS valve cover vent inlet ports. This method is what we recommend to provide the best venting while under high lateral G forces. If connecting each vent separately, skip to step "h".
c. If you using the OEM piping on top mounted intercooler as your "T" connection, install (1) supplied black plastic 1/2" barbed 3/8NPT straight fitting into one of the AOS valve cover vent inlets. Install supplied black plastic 3/8NPT plug into remaining valve cover vent inlet. **See NPT Notes above regarding installation of these fittings.**
d. Remove OEM rubber hose from "T" junction piping on top mounted intercooler and from turbo inlet hose. Using supplied 1/2" emissions hose connect "T" junction to 1/2" fitting installed on AOS valve cover vent inlet port. Continue to Step 8.




**The above setup shows a simple setup that uses the OEM valve cover vent piping that bolts to the top mounted intercooler.**

e. If you are connecting each valve cover vent to the supplied "Tee" or "Y" junction, then to the AOS (as shown below), install (1) supplied black plastic 1/2" barbed 3/8NPT straight fitting into one of the AOS valve cover vent inlets. Install supplied black plastic 3/8NPT plug into remaining valve cover vent inlet. **See NPT Notes above regarding installation of this fitting.**
f. Remove all OEM valve cover vent hoses and piping on top mounted intercooler up to turbo inlet hose. Install supplied 1/2" emissions hose onto each valve cover vent, join left and right side with supplied "Y" or "T" connector, and secure with supplied clamps. See diagram below showing "Y" connector being used. **NOTE: We recommend removing all OEM rubber valve cover vent hoses as they become very brittle over time.**
g. Connect third leg of "Y" or "T" to 1/2" fitting used on AOS valve cover vent inlet port. You can see in the below diagram typical routing found on the most common setups. Continue onto Step 8. **NOTE: Make sure that the routing of hoses do not interfere with moving parts or travel over extremely hot parts like a turbo or downpipe.**




**Actual routing of hoses may not be represented above. Diagram shows simplified path to help visualize routing.**

h. If you are connecting each valve cover vent separately to the AOS, install (1) supplied black plastic 1/2" barbed 3/8NPT straight fittings into each of the valve cover vent inlet ports. **See NPT Notes above regarding installation of this fitting.**

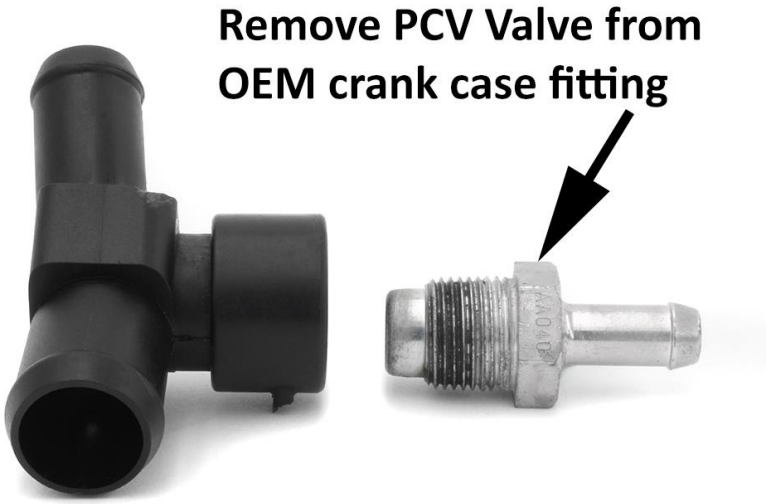
i. Remove all OEM rubber valve cover vent hoses and OEM steel piping on top mounted intercooler. Using supplied 1/2" emissions hose, connect each valve cover vent to each of the 1/2" fittings installed into the AOS valve cover vent inlet ports. Secure with supplied #3 hose clamps. **NOTE: Make sure that the routing of hoses do not interfere with moving parts or travel over extremely hot parts like turbo or downpipe.**

## 8. Outlet and PCV Connection

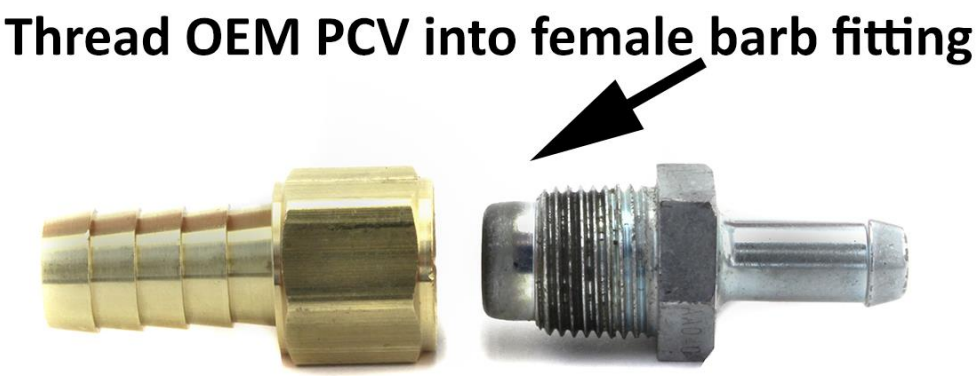
a. The AOS outlet is the top threaded hole on body. This connection needs to be connected to the turbo intake system. This connection must be in front of the turbocharger, and behind the air filter. **NOTE: We do not recommend leaving this fitting open as some oil can still come out under certain conditions, which can create a mess or combust if exposed to extreme heat.**

b. Along this hose (connecting AOS top to intake system) you will need to install the PCV "Y" connection. The PCV is a 1-way valve that provides positive crank case ventilation during idle and light load situations. This valve is important to install as described or boost pressure will be lost and there will be no positive crankcase ventilation occurring. **NOTE: The PCV connection can be skipped for certain applications, see special note regarding this at bottom of instructions.**

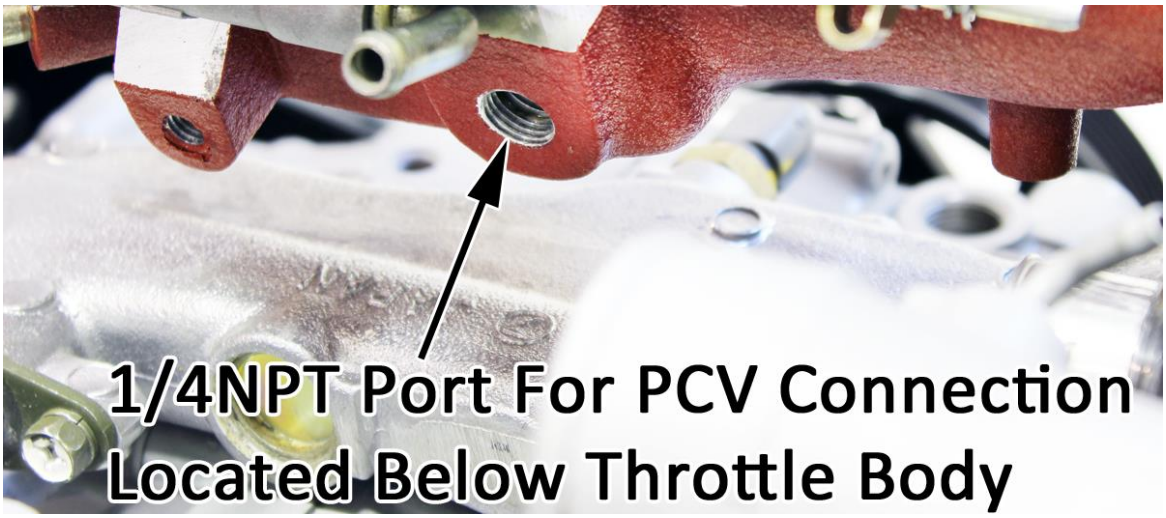
c. Locate PCV junction removed from engine block in earlier step and remove PCV valve from plastic housing as shown below. **NOTE: This can be tight to remove and may require a vise to hold housing while fitting is unscrewed. It may be necessary to use solvent or a thread penetrating oil to free from housing. 02-03 WRX's can skip this step as the OEM PCV is threaded into intake manifold and a hose will be attached directly to this in later step.**




d. Install PCV valve into supplied female brass fitting and tighten down. **See NPT Notes above regarding installation of this fitting.**

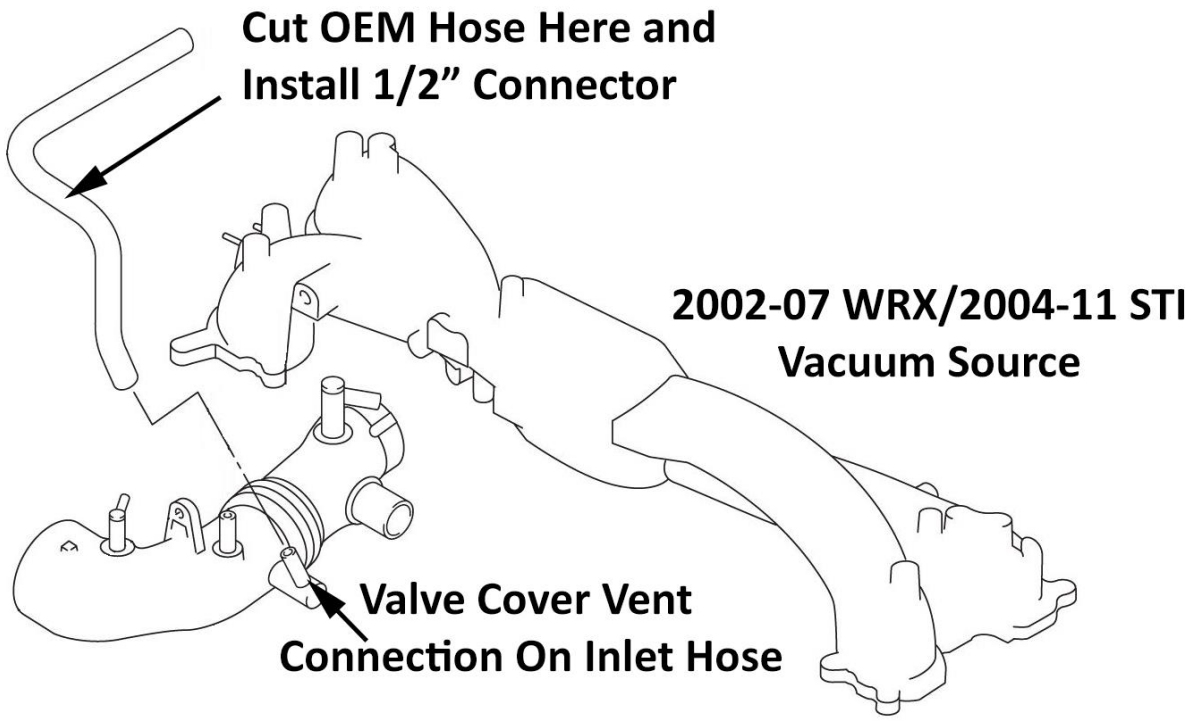



e. Install supplied 1/2” barb 3/8NPT 90 degree black plastic connector into top of AOS. **See NPT Notes above regarding installation of this fitting.**

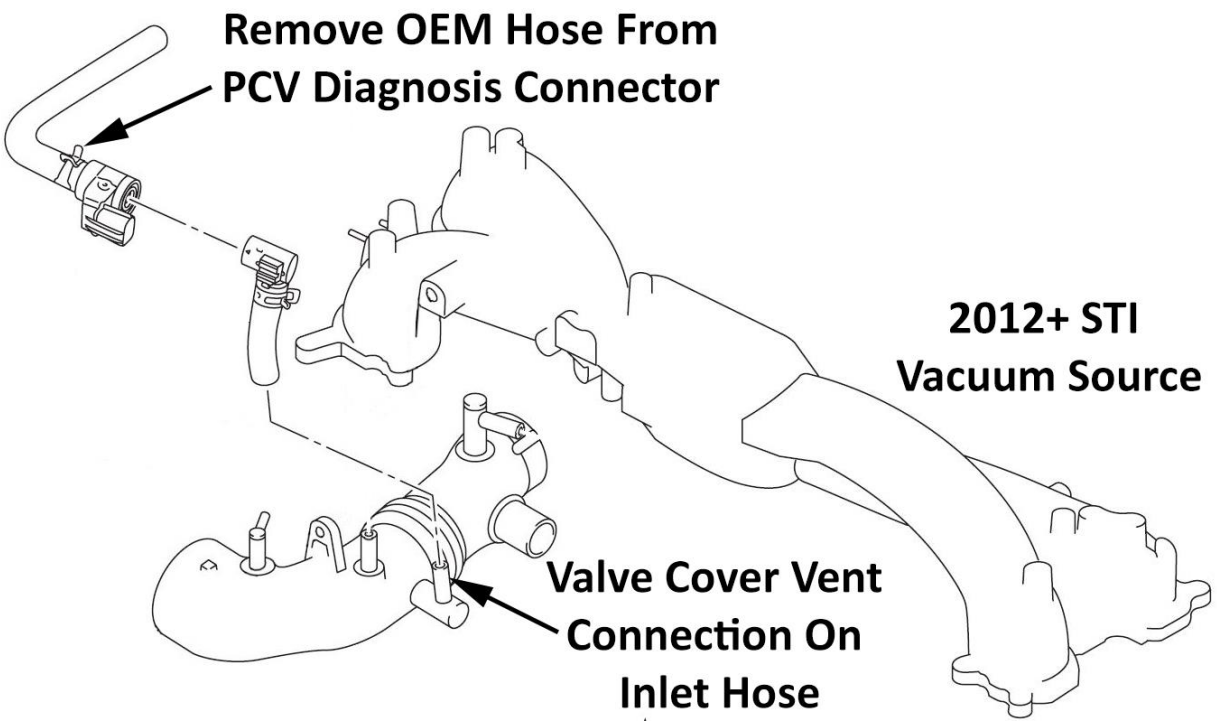



f. Locate previous PCV vacuum connection on intake manifold under throttle body. The diagram above shows where you will find either a 3/8” fitting or PCV valve threaded into manifold. Diagram above shown
   i. For 2002-03 WRX’s, connect supplied 1/2” emissions hose over PCV valve. This is a tight fit and will require a bit of stretching of hose as well as some force to push it over larger fitting. Use supplied #3 clamp to secure. Do not cut hose to length at this time.
   ii. For other models, connect supplied 3/8” fuel hose to fitting and secure with #3 clamp. Do not cut hose to length at this time.

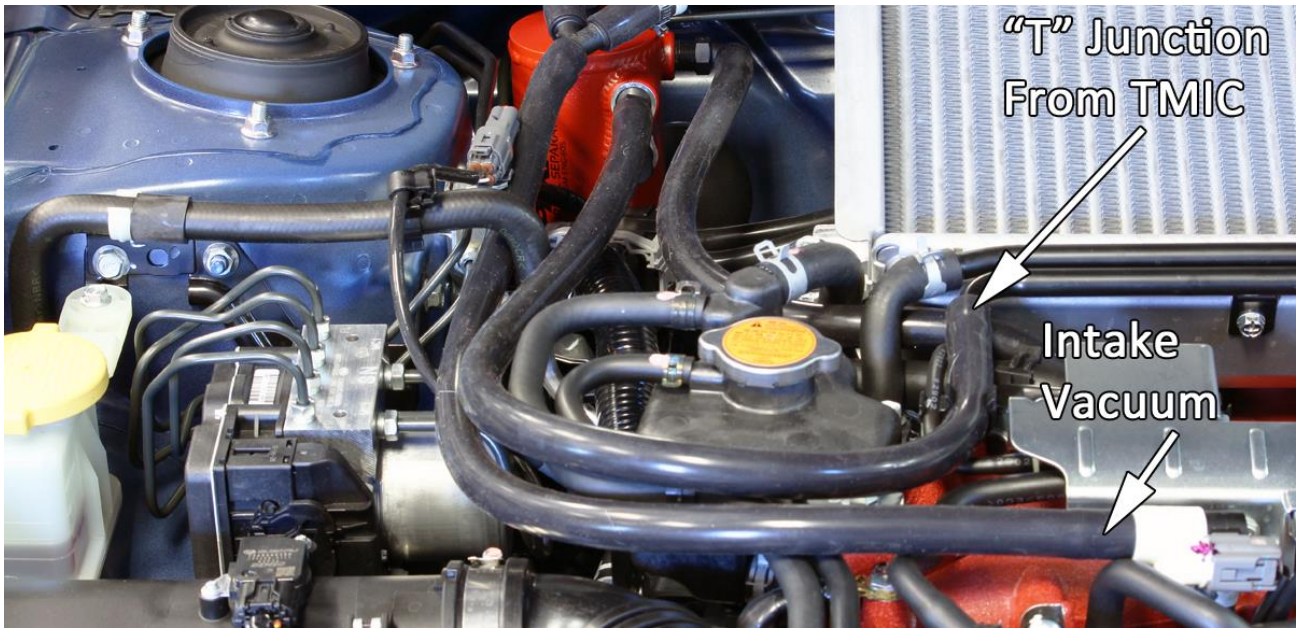
g. Using supplied 1/2” emissions hose, connect AOS outlet (top fitting) to intake vacuum source at turbo inlet hose.
   i. For 2002-11 models, cut OEM rubber vacuum hose after bends. Use supplied 1/2"-1/2” black plastic connector to join OEM rubber hose to 1/2" emissions hose. See diagram below.



ii. For 2012+ models, remove OEM rubber vacuum hose at white PCV diagnosis connector and connect 1/2” emissions hose to fitting. See example diagram below.

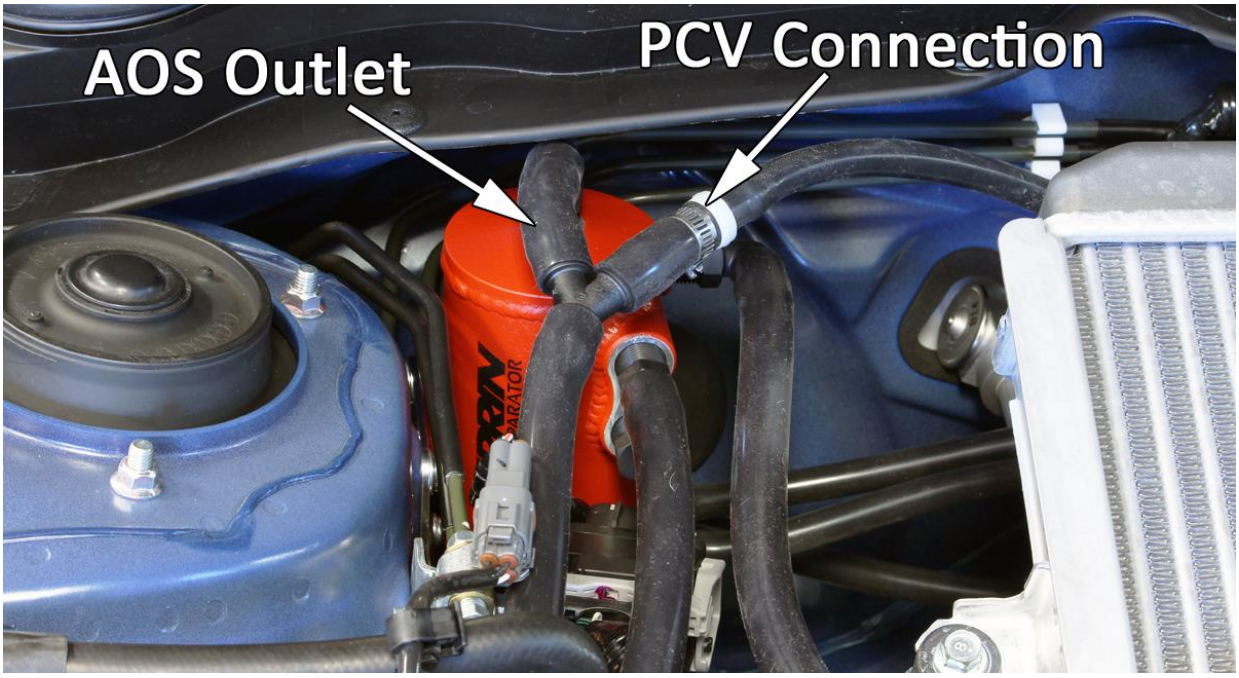



iii. Vehicles with aftermarket turbo inlet hose will use one of the above installation methods depending on what is supplied with the inlet hose. If installing with PERRIN inlet hose, no additional fittings are needed.



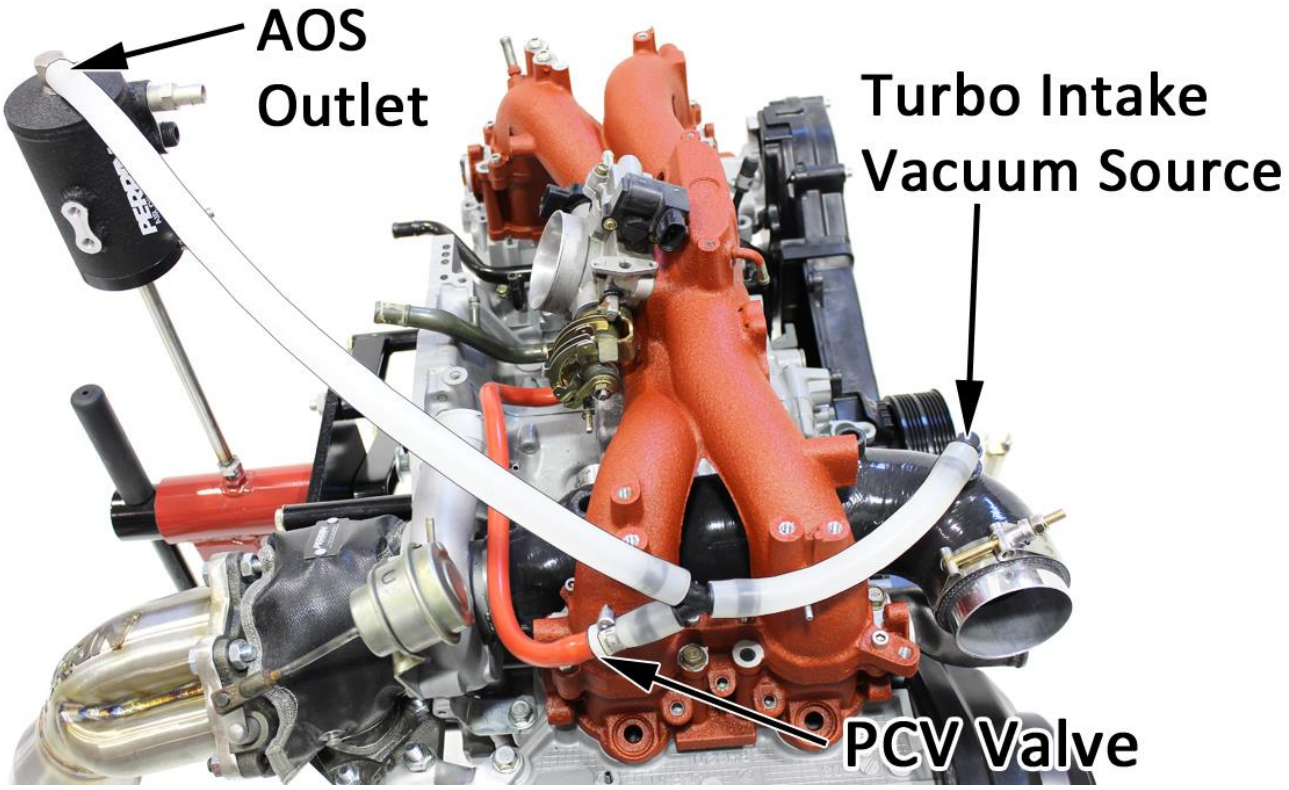

**Above picture shows intake vacuum source at turbo inlet hose on 2012+ STI engine with extra PCV diagnosis connector.**

**h.** Decide where to install PCV valve (one way valve) and “Y” connector along 1/2" emissions hose coming from AOS outlet. **NOTE: The location of this is not important as long as it’s along the hose between the AOS top and the turbo intake system. Below are a couple diagrams with different options as to where to make this junction.**




**Picture shows Y junction installed at AOS, and PCV location. PCV location does not need to be this close to AOS.**

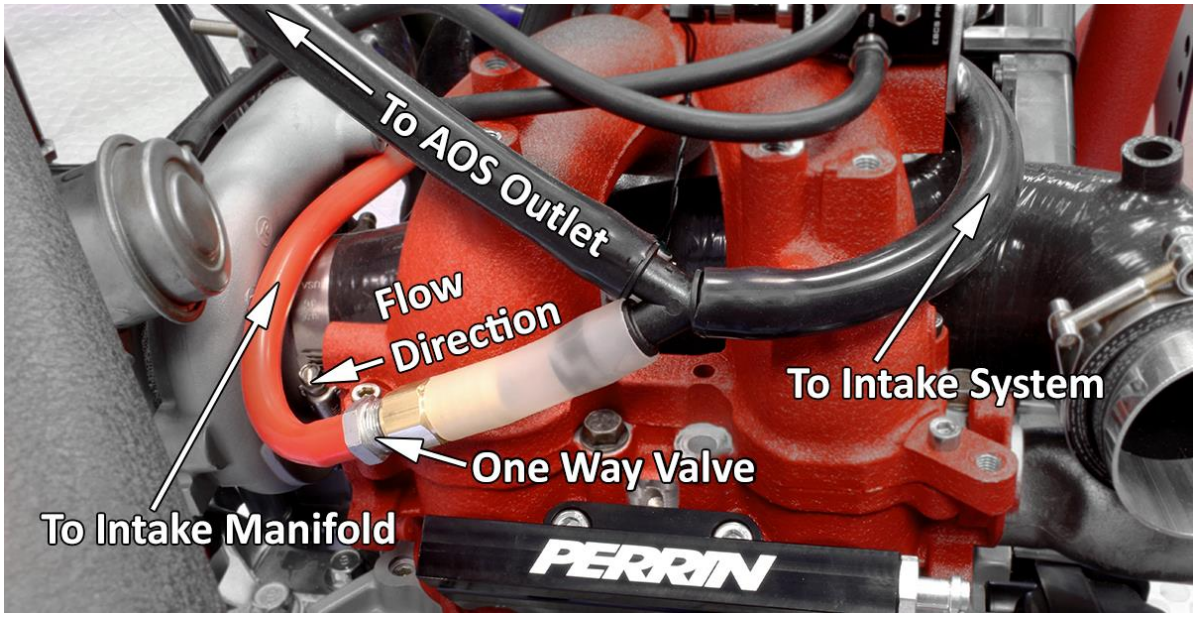
i. Once desired location is found, cut 1/2" emissions hose and install supplied "Y" connector making sure to aim 3rd leg back toward AOS away from Turbo Intake Vacuum source. Use above and below diagrams to give you a better idea how this can be setup. It is not critical as to the location of PCV valve itself. It can be located close to intake manifold or right at AOS outlet and it will not affect how system works.




**Above diagram shows 04-07 WRX and 04-13 STI setup. 02-03 WRX will NOT have PCV valve located at shown.**

j. For 2002-03 WRX's, connect 1/2" emissions hose coming off PCV valve (threaded into manifold below throttle body) to 3rd leg of "Y" connector. Skip to Step 9 to continue installation.

k. For all other models, cut a piece of 1/2" emissions hose (2" is what is shown in pictures) and install over 3rd leg of "Y" connector as shown in above and below diagrams. Install 1/2" side of PCV valve assembly (assembled earlier in step 8) into 1/2" emissions hose. Install supplied clamp and tighten down on hose.




l. Route previously installed 3/8" fuel hose from intake manifold PCV fitting to 3/8" fitting on PCV valve. Cut hose to length and secure hose with supplied clamps. Using above diagram, ensure that PCV valve (one-way valve) is installed in the correct direction and on the correct leg of "Y" connector.

9. After AOS is completely installed, double check that all hoses and vacuum lines are connected and secured using a clamp. Any leak in the system can cause the engine to run poorly and will lead to unsafe engine conditions.
10. Check that all bolts and hardware securing AOS are tightened down.
11. Reconnect throttle body to intake manifold. **NOTE: Gasket can be reused if it was not damaged during installation.**
12. Using supplied zip ties, secure wire harness (removed in earlier step) toward shock tower or frame rail. **NOTE: Keep away from turbo charger to ensure no damage from heat occurs.**
13. Using supplied zip ties, secure emissions hoses to engine and other hoses to reduce the chance of abrasion wearing down hoses over time.
14. Reinstall intercooler pipes removed earlier and start car. Ensure its running as it was before. Turn off engine and add any coolant that was lost during installation. Restart engine and take car for test drive. If car is misfiring or check engine light occurs, recheck all aspects of install.
15. After roughly 10 minutes of driving, recheck all fittings for signs of leaking. If leaks are found stop and fix ASAP.

# Maintaining your Air Oil Separator

- There is very little maintenance required with the PERRIN AOS. From time to time you may want to remove it and clean out some of the oil from the inside. Before taking apart, take note or mark orientation of AOS bottom to the body.
- Remove bolt in bottom of AOS using an M5 wrench and twist bottom while pulling to break free RTV seal. Remove bottom from AOS Body.
- Using a biodegradable degreaser, liberally spray inside can and let it sit for a few minutes. Wash out with warm water until inside of AOS is clean and free of oil.

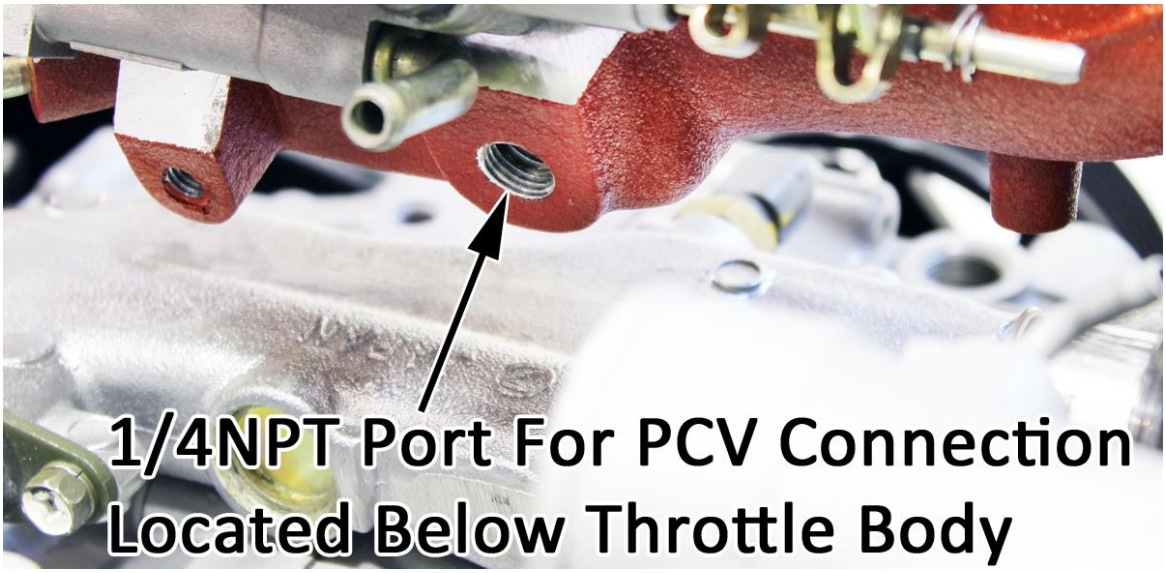
- Remove special quad-type O-ring from bottom and thoroughly degrease using biodegradable degreaser. **Note: Do NOT use brake cleaner to clean O-ring as damage may occur.**
- Inspect o-ring, remove any RTV from it and if damaged replace with new included extra O-ring used for maintenance. Additionally, these can be purchased through PERRIN performance, or through one of our dealers.
- Using a strong degreaser (or brake cleaner sprayed onto a rag) wipe around inside of lower portion of AOS body and over AOS bottom to remove any leftover oil or contaminants).
- Install O-ring into groove on bottom after brake cleaner has evaporated. **Note: If brake cleaner is left on bottom, damage to O-ring can occur.**
- Using supplied RTV silicone compound and instructions above, re-seal lower connection. **Note: Make sure there is no oil or grease on O-ring, bottom, and lower section of body before following re-sealing instructions from above steps.**

# Crank Case Vent Hook Up for Race Cars/Cars with Loosely Built Engines

- We have found that to help control oil entering the AOS you can alternatively remove the crank case vent hose from the system, leaving only valve cover vents to do the job of venting crank case pressures.
- Consult your tuner to decide if this is the best setup for your car.
- Remove plastic fitting on AOS body used for crank case vent and install supplied 3/8NPT plug.
- Remove 1/2” fitting on PERRIN crank case vent junction and install supplied 1/4NPT plug.
- This turns the PERRIN crank case vent junction into a drain-only for your AOS.
- You must ensure that left open vacuum ports on turbo intake system are plugged up if this method is chosen.

# PCV Delete for Race Cars/Cars with an Extreme Amount of Blow-by

- While we do not recommend this for street driven cars, some racecars may want to disconnect the PCV side of the system. This can cause long-term issues on street driven cars, and is not recommended. For those who understand these risks and understand the reason for removing the PCV connection, please follow the below alternate instructions.
- Locate port on intake manifold that PCV was hooked up to. Remove fitting and install supplied 1/4NPT plug into manifold. **NOTE: This is a tapered type of fitting and seals when tight, not when bottomed out. Take care in not over tightening fitting as this can damage intake manifold. See NPT Notes above regarding installation of this fitting.**




- Using supplied 1/2" emissions hose, connect AOS outlet to intake system somewhere before turbo and after air filter.
- Secure hoses with supplied hose clamps.
- If you find you have excessive of blow by and or smoking from car after this done, we recommend reinstalling PCV system as described above.

**Questions, Comments and Suggestions Contact: Tech@PERRINperformance.com**
**Visit Our Website for Instant Chat Options at www.PERRINperformance.com**
**Call Our Tech Team at 503-693-1702**